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OUR CONTRIBUTORS

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THE WAY OF RESEARCH

A Story of Triumphs won at Widnes Laboratory of General Chemicals Division

By Dr. J. Ferguson (Managing Director, General Chemicals Division)

Deadly insecticides, hormone weedkillers and revolutionary plastics — these are all products of research. But just what goes on in the laboratories where these wonders of science are unfolded? Here a former Research Director explains the sort of problem met with and how it is tackled—in the laboratories where the insecticide 'Gammexane' was developed and whose scientists made the uranium used in the first British atomic pile.

A visitor to the industrial town of Widnes, if he strolls through some of the grimmer streets in the neighbourhood of the railway station and of the public baths, may happen to glance through one of the numerous works gates found in that area and have his eye caught by a long, severely functional building of handsome red brick which, rising from the verge of a network of railway lines, stands facing a variegated pile of chemical plant. This red-brick building is the Widnes Laboratory, the home of General Chemicals Division research—one of I.C.I.'s many research laboratories.

The visitor, if privileged to penetrate the interior, will find there the usual appurtenances of a scientific institute—apparatus of gleaming glass and shining metal tended by white-coated servitors and housed in smooth-walled laboratories. But, if he passes through and beyond the main building, he will discover behind it a warren of older buildings housing workshops, stores, and much small-scale chemical plant, covering in all an area of about $2\frac{1}{2}$ acres.

The red-brick building is of recent date, having been built during the last fifteen years or so. But the site has a rather longer history and one of considerable interest.

The modern building is an extension of an older building erected in 1892 at the instigation of the celebrated Dr. Ferdinand Hurter, at one time Chief Chemist of the United Alkali Company—a parent company of the General Chemicals Division. The older building, now known as the Hurter Laboratory, must have been one of the first buildings in this country specifically designed as an industrial research laboratory. Hurter, writing in 1891 to his directors, stated what he thought the functions of the proposed research establishment should be.

> These functions were to carry on original research, investigate processes offered to the company, investigate patents of rival concerns and inventions made by the company's servants, carry out analytical work in connection with complaints from customers and to check tests made in the laboratories of the various works.

The functions of the Widnes Laboratory today remain very much the same as those laid down by Hurter, but in place of the half-dozen trained chemists, the single general handyman, and the confidential clerk which sufficed for Hurter's old Central Laboratory, the modern site houses now almost 600 personnel—chemists, physicists, engineers, tradesmen and general workers.

What are all these people doing? The answer, of course, is that they are engaged on industrial research work, i.e. they are trying to minister to the needs of the General Chemicals Division of I.C.I. by seeking new and useful knowledge capable of being applied to raise the efficiency of the Division's manufacturing processes and to expand the range of the Division's products.

The Division has 140 distinct products on its selling range, and these are products with the most varied uses—acids for pickling steel, for manufacturing fertilizers and explosives, and for filling accumulators; saltcake for glassmaking; caustic soda for rayon manufacture and much else; chlorine for bleaching and sterilising; chlorinated solvents for degreasing and dry cleaning; cyanides for gold extraction; compounds to kill insect pests; compounds to kill weeds; anaesthetics; intermediates for the manufacture of plastics; constituents of soap powders; refrigerants, etc. It is obvious that such variety of interest yields great scope for research.

A considerable portion of the Widnes Laboratory research is concerned with seeking improvements to existing Division processes. Chemical technology does not stand still. New scientific knowledge is acquired, new constructional materials are discovered and economic conditions change, and what may once have been a modern and highly efficient plant begins often, in the course of time, to fall short of the ideal. Yet it is clear that such work alone cannot form the sole or even the main *raison d'être* of a large industrial research laboratory. The essential activities of the Widnes Laboratory, in common with those of most other I.C.I. research laboratories, are (*a*) to try to find new chemicals worth making or new uses for existing chemicals and (*b*) to find out how to make such chemicals on the large scale.

How are such investigations performed? To give the non-technical reader some concrete idea of how industrial research of these types is carried on I cannot do better than trace the history of the research and development of one of General Chemicals Division's latest products—the insecticide 'Gammexane' or, to give it its scientific name, benzene hexachloride. The story in outline is as follows.

Testing at Hawthorndale

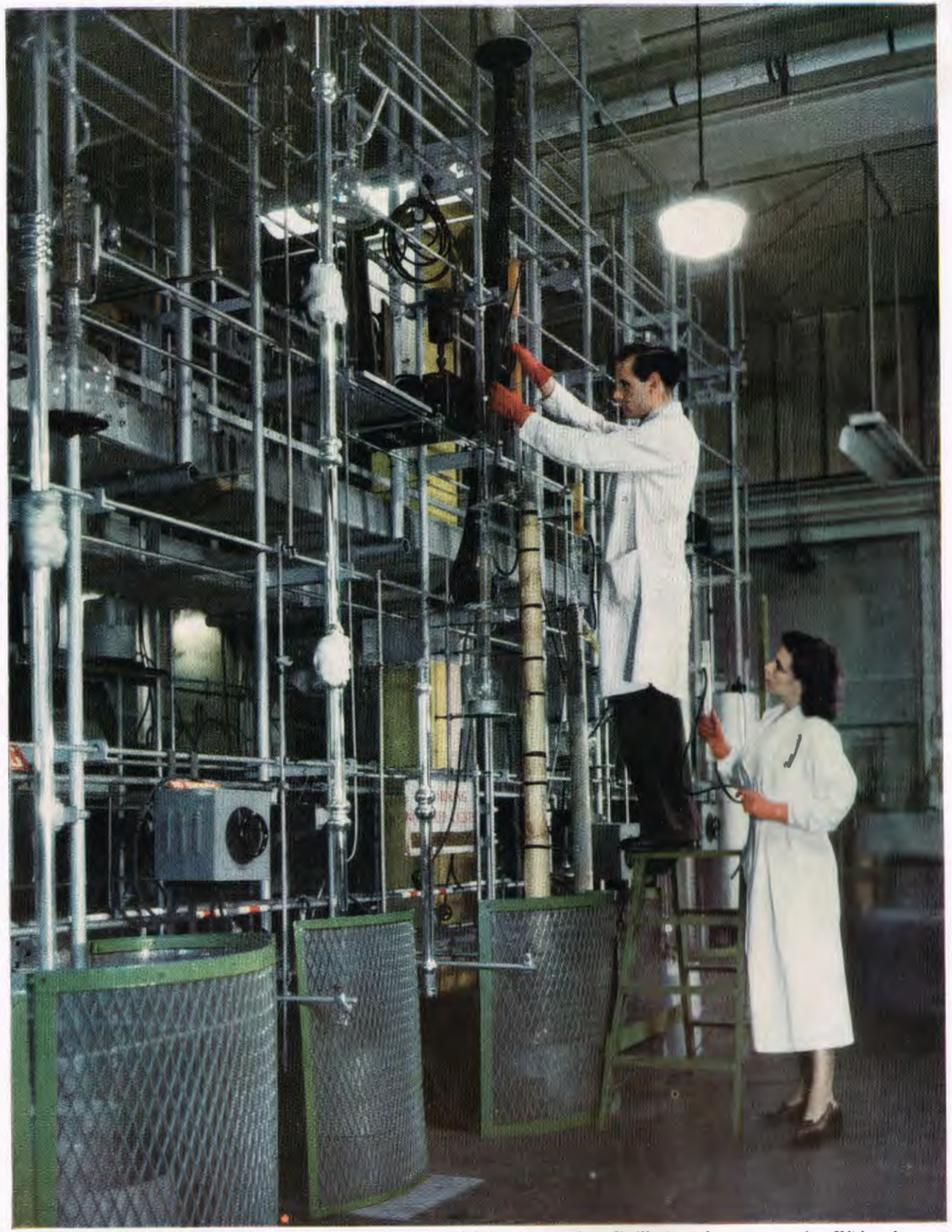
Before the war I.C.I. set up in Hawthorndale in Berkshire a research station with the object of discovering new insecticides and fungicides, better, if possible, than those then known and suitable for manufacture by I.C.I. At this station, chemicals produced in the laboratories of any I.C.I. Division were to be—and now are—tested for their poisonous action on insect pests and other forms of life.

Generally speaking, there is no method of telling in advance whether any given compound will or will not be a good insecticide. The search for new insecticides can be conducted only by hit and miss methods—trying out great numbers of compounds in the hope that one may turn up trumps.

In common with many other I.C.I. Divisions, General Chemicals Division submitted—and still continues to submit—a stream of chemicals to Hawthorndale for test. The chemicals are not necessarily new substances; many well-known substances which in the past have not been examined for their poisonous properties are included. Among the chemical substances submitted by General Chemicals Division in 1941 was a well-known chemical—benzene hexachloride, a white solid compound made from benzene and from chlorine, the latter substance being, of course, one of General Chemicals Division's main products. Benzene hexachloride, though relatively harmless to human beings, was found to be one of the most potent insecticides ever found. Thus, for example, less than an ounce of the crude material will kill $1\frac{1}{2}$ million locusts—about a ton weight of the insects—and it has similar potency towards the malaria-bearing mosquito and many other harmful insects. It was clear on receiving the test results that this substance was worth making on the large scale for sale.

The G.C. Research Laboratory therefore turned to investigate the most efficient methods of its manufacture. Now, benzene hexachloride is made by bubbling chlorine gas through liquid benzene in presence of light. If, during the preparation, excess of chlorine is avoided, a solution of benzene hexachloride in benzene is obtained, and the solid benzene hexachloride can then be obtained by boiling off the benzene.

This process seems a very simple one, and it might be asked why any further investigation was needed. Yet much work



SPECIALLY DEVELOPED APPARATUS *is the hallmark of a research laboratory. These distillation columns are used at Widnes for very accurate separation of liquids. They are here being operated by Nevin Bradford and Diane Morton.*

had to be done before a plant could be designed and built. In the first place, chlorine and benzene can react to yield substances other than benzene hexachloride—unwanted substances—and conditions must be found which will prevent their formation. Again, the rate of reaction is all-important on the large scale—the amount of material produced per unit of plant in a given time—and the conditions required for maximum production rate had to be determined.

To solve these and other problems the following questions had to be asked and answered. At what temperature should the benzene be maintained during the admission of chlorine? Is any heat generated during the reaction, and if so, how much is produced per pound of product made? As indicated above, benzene hexachloride is formed from benzene and chlorine only in presence of light. Will any kind of light do to stimulate the reaction, or will only light of certain colours be effective? What is the best intensity of light to use? Should the chlorine be bubbled through the solution quickly or slowly? Should one try to convert a small or a large quantity of a batch of benzene to benzene hexachloride? Will commercial benzene be satisfactory, or must a high-purity, i.e. a more expensive, benzene be used?

Many Experiments

Straightforward as these questions are, they can be answered only by experiment, and by many experiments. Moreover, to get the best results the right combination of conditions must be fulfilled. The solution of questions like these is the task of the research laboratory.

They were answered, or at least tentative answers were given, by laboratory experiments working with a few ounces at a time of benzene in glass apparatus illuminated by mercury vapour and other types of lamp. But the task of the laboratory was not finished. Then came the problem of designing a full-scale plant. Before the engineers could do this, further information was needed.

Scaling up from the laboratory beakers introduces serious problems. Would the reaction work in the same way on a large scale? The type of turbulent agitation obtained by stirring in a laboratory flask may be quite different from that obtainable in a large vessel. Would the reaction behave in the same way under such different conditions? Metal vessels, not glass flasks, would be used in the full-scale process. Would the use of metal affect the results? The light necessary for the reaction will not penetrate a large mass of solution as easily as it does on the small scale. One may try to predict the effects of scaling up, but usually the combinations of variables is so involved that the prediction cannot be made with certainty.

Once again the only thing to do is to experiment. In such cases a small plant is therefore erected—say $\frac{1}{10}$ or even $\frac{1}{100}$ of the projected full-scale plant—and the researchers settle down to make it work. Many unforeseen snags are likely to be encountered, but when these are dealt with and the small plant has operated satisfactorily for a sufficient time it is possible for the full-scale plant designers to get to work. This procedure was followed in developing the benzene hexachloride process, which now operates on a large scale in the Division's works.

The above in barest outline illustrates the way in which an industrial research department contributes to the creation of a new plant and a new process.

Since the formation of the Division in 1932 many new plants have appeared in the Division works which had first to be developed in the Research Department. Thus, since 1932 the General Chemicals Division has engaged in the manufacture of substances known as "monomers" which are subsequently transformed into the now well-known plastics 'Perspex' and polyvinyl chloride.

During the Division's existence there have appeared in its works many new processes which had first to be developed in the Research Department. For instance, one might mention the processes now operating to manufacture two products belonging to the class of substances known as "monomers." These were subsequently transformed into the well-known plastics 'Perspex' and polyvinyl chloride.

Among other new General Chemicals Division manufactures which had to go through their preliminary process trials in the Research Department are 'Methoxone' (discovered originally in a joint research of the Dyestuffs Division and Jealott's Hill—a valuable weedkiller used for ridding cornfields of charlock and other weeds (and lawns of daisies !) and another product requiring chlorine in its synthesis; chlorinated rubber or 'Alloprene'—a useful constituent of certain paints; chlorinated paraffin wax—a valuable plasticiser and an additive to oils to render them capable of lubricating under high pressure; and, last but not least, lighter "flints" made from mischmetall, an alloy produced by electrolysis of the molten chlorides of rare metals such as cerium.

In addition to aiding the development of our own industry, the General Chemicals Division Research Department has during the war done much work of a confidential character for the Government. It was, for example, until new Government laboratories were built up, a main centre for the investigation of the chemical processes involved in the manufacture of uranium and plutonium, and much of its work is embodied in the design of the British Government's atomic energy projects. The uranium in the first British pile was produced in a small plant designed and largely operated by Research Department personnel.

Modern Equipment

It is clear that, due to the highly scientific basis of modern chemical industry, the laboratory must be staffed by well-trained personnel. At present it contains 85 university-trained chemists and physicists and 17 engineers of university standing.

The most modern instruments are required to follow the processes of a chemical reaction and to study the often subtle differences between the various forms of matter. The laboratory is well equipped with such instruments. Infra-red rays are employed extensively in research analyses. Radioactive substances are used to track down the wanderings of elusive atoms, large molecules may actually be seen in the department's electron microscope, crystals reveal their inner symmetry when subjected to illumination by X-rays, and for some of the most ticklish analytical problems a mass spectrograph constructed in the laboratory is available.

One man and his job—7

Operator of the MASS SPECTROMETER

THE mass spectrometer at the Widnes Laboratory of General Chemicals Division took two years to build. Some of the best draughtsmen, glassblowers, electricians, fitters, joiners, welders and blacksmiths in the Research Department worked on it. Now it is the object of a kind of family pride, and a sight that no visitor is allowed to miss.

The machine cost £10,000, and my first reaction on seeing it was to feel that the Division had got its money's worth. Facing Miss Elsie Edwards, the operator, is a large panel covered with dials and switches and important-looking red and green lights. On her left stands another festooned with glass tubing, through which about 100 lb. of mercury courses busily up and down; from somewhere behind the scenes comes a faint glup-glupping. On the right is a third panel containing a moving belt of squared paper, on which a red pen describes what looks like the temperature chart of a very sick man.

"It's a wonderful piece of apparatus," said Elsie, flicking an imaginary speck of dust off the dial. "Come and look at the inside." She showed me a weirdly glowing interior. Much of it was taken up by an enormous electromagnet, and I believe it was only the risk of a 2000-volt shock that restrained her housewifely instinct to remove the back panels and dust that as well.

"Our main use of the mass spectrometer is to analyse samples of works products," she told me. "We can detect an impurity of only ten parts in a million in a substance that might otherwise have been passed as pure. *And* often we can find out what the impurity consists of."

To find such a very small nigger in such a very large woodpile is about as difficult as it sounds. Elsie and her mass spectrometer can do it in half an hour, and she showed me how.

The sample went into the glass assembly on her left. This time it was an experimental liquid anaesthetic she was analysing. The instrument only needs a drop the size of a pinhead to "look at," which is a great advantage when scarce new products are involved. By means of powerful vacuum pumps (the source of the glup-glupping I had heard) this drop is reduced in pressure until it becomes a vapour.

As the vapour passed on to the heart of the instrument, which is concealed behind the centre panel, Elsie's fingers flew to knobs and switches, and the pen started to describe mountains and molehills on the moving chart. I asked her to explain what was happening—"In the very simplest terms," I added, as she began to talk of the ionisation chamber, electrons, the analyser tube and mass-charge ratio.

Elsie told me to imagine that the sample was a box containing millions of mixed cricket, tennis and ping-pong balls. What the machine did, in effect, was to break open the box and fling the balls in rapid succession towards a narrow slit. At first, because of a strong cross-wind, only the heavy cricket balls reached and passed through the slit. Reduce the cross-wind—she twirled a knob on the panel—and the lighter tennis balls and then even the ping-pong balls would reach the slit.

The machine automatically varies the strength of the "cross-wind"—in reality a magnetic force—and weighs and counts the "balls"—particles called ions—passing through the slit. Any impurity shows up in much the same way as a football, say, or a marble would among a hail of cricket, tennis and ping-pong balls.

Elsie's practised eye is quick to detect any interlopers. As the passage through the slit of the various ions in the anaesthetic sample was recorded on the chart she pointed out to me a bump $\frac{1}{8}$ in. high among several steep peaks. "That shouldn't be there," she told me quite firmly.

She found it difficult to explain her certainty. But you could compare it to the certainty of a finger-print expert who picks out the prints of a wanted man on evidence you or I could not see. The "finger-prints" of more than two hundred substances are known, and if the mass spectrometer chart differs even minutely from the correct "finger-print" she will spot it at once.

Identifying the interloper is the next step. Here again, experience counts for everything, although Elsie admits that inspired guesswork is useful too. This time she looked at the offending bump on the chart, scribbled some figures on a piece of paper, crossed them out, scribbled some more, and at the end of ninety seconds had the identity of a chemical that had no business to be lurking in the sample. The detective work accomplished, it was now up to the experimental chemists to arrest the culprit.

This is just one example of the mass spectrometer's almost uncanny powers of detection. In the past few months it has helped in research work on chemicals called 'Arctons,' used in refrigerators, it has helped in finding impurities in titanium metal, and it has enabled a large number of routine jobs to be quickly and accurately done.

Elsie disclaims any credit for this. "It's just a wonderful piece of apparatus," she says.

M.J.D

Miss Elsie Edwards

Information Notes

HUMAN RELATIONS IN INDUSTRY

By Lord McGowan (President of I.C.I.)

The bi-monthly periodical Review, *published by the Institute of Public Affairs in Australia, carries this month a most interesting article by Lord McGowan on I.C.I. Here is an extract from this article, in which Lord McGowan explains the principles and aims which have governed the Company's relations with its employees. Lord McGowan sailed for Australia on 15th November for a short visit on a goodwill mission.*

WHEN the Company was formed we appointed a committee to consider all labour and personnel problems, for we appreciated that the proper handling of these problems was just as important as a manufacturing division. A director of the Main Board was made chairman of that committee, with instructions to be sympathetic to labour but not subservient, and to establish that bond of human relations between management and workers which is so essential for the progress and success of any company.

I, throughout my twenty years as Chairman, and my colleagues made it a duty to visit our factories as frequently as we could spare the time—and we made that time—from our directorial duties in London. During those visits we made a point of talking with foremen and old workers, of enquiring after their health and their families, and discovering whether they were happy in their jobs. This human touch was much appreciated.

The British working man is a stout and excellent fellow and responds to human handling, and after all, he is an integral part of any organisation. I can give you two illustrations of what I mean.

During the period of our war effort, for example, when we were employing 130,000 people, we had not a single day's strike—nothing more serious than a few sporadic troubles, none of which lasted more than an hour or two.

Secondly, I would quote an incident which occurred at our very large factory in Ayrshire—a factory which did noble work during the first and second world wars. In this, as in so many other I.C.I factories, a fine community spirit exists. A young man and a girl in the factory marry: time marches on and children come along; and, as is very often the case, once the children reach maturity they join the I.C.I. organisation too. Just before the last war one of the managers of this plant said to one of the oldest workers there: "Willie, you have been a wonderful servant, never a complaint about you; but the Company's rules stipulate that the time has come for you to retire." Willie scratched his head for a moment before retorting: "Retire ? Retire ? After fifty years ? If I had known this was a temporary job I'd never have taken it !"

I instance this story to emphasise that men are not always time-servers, not always just "factory hands"; many bring hands, mind and spirit to the service of their company. Men of this calibre can be counted upon to produce something extra, to see the job through and go on working honestly whether the foreman is about or not.

I do not say this is true of all I.C.I. operatives, a fine body of men though they are; if it were, I.C.I. could undoubtedly claim to have solved the manifold problems of human relations within industry, whereas the truth is that I.C.I. is still learning like everybody else.

The main factors which affect "work satisfaction" are known, although their relative importance may not yet be established. I put them in the following order of importance: security, consultation, the relation of pay to effort and skill, incentives, wise selection, and working amenities.

There is nothing the British worker craves more than security. He thinks of his old age, and of his wife and children should sickness or death overtake him. All this is much to be applauded. On this question of security I am glad to say that years ago I.C.I. established a contributory pension fund for the worker that takes care of him when he retires, and he knows that his declining years will not land him in financial straits. This scheme was quite recently amplified to provide for the payment of a pension to a worker's widow and dependants after his death.

It is common knowledge that we in Britain have a State insurance scheme which covers the entire population. The introduction of this scheme did not, however, invalidate I.C.I.'s scheme in the eyes of its workers, the vast majority of whom elected to remain within it, notwithstanding the extra contribution demanded of them under the national plan.

This brings me to the second factor—consultation—for

security is very much bound up with it. No man can give of his best if his mind is constantly beset by fears of losing his job. Yet the floor of the shop can be a hotbed of anxiety-forming rumours, particularly when industrial conditions in general are difficult. Rumours of lost export orders or shortage of raw materials, of short-time working or of new machines "that'll do the work of five of us" produce an atmosphere in which no man can possibly give of his best.

This sort of thing gets worse in proportion as the size of the works increases and tends to reach its peak in the largest organisations, where a man is liable to regard himself as a nameless cog in a soulless machine, with no recognised individuality or even existence. These rumours should never be allowed to be born, and the best way to accomplish this is through joint consultation.

Properly elected representatives of the workers must meet regularly with representatives of the management, so that matters such as those I have enumerated — and not just trivialities—can be explained *in advance*.

It is important that the works manager himself (as chairman) and several members of the management team should take part in these meetings; a conference of workers' representatives alone is of no avail. Indeed, it is dangerous, for it serves to perpetuate the falsehood that there are "two sides" in industry.

I have never ceased preaching the gospel that the differences between management and workers never amount to more than a conflict of view. Both have a common interest in the prosperity of the company and in its continuing ability to provide both work and wages. To get this understood is one of the greatest problems of management, and it is at its acutest today because the growth of big concerns is accentuating the danger of the "cog-in-the-wheel" complex just at the time when the worker is better educated than ever before, and therefore more eager than ever before to know what is going on.

Joint consultation committees can never, of course, impinge on the proper field of the trade unions. That is to say, such matters as wages must always be excluded from their deliberations. Nevertheless, much of the affairs of the organisation—the state of its order books, the development of new products or processes, and the improvement in conditions of working—are proper subjects for discussion.

I would go further, of course, than stipulate joint consultation between works managements and workers. The approach must be dynamic from the very top. It also goes without saying, I hope, that any *policy* of personnel relations must equally take account of job selection, amenities, and the other factors I have mentioned. Every misfit is inefficient, but the round peg is invariably efficient in a round hole, and pains must be taken to see that he gets it.

I am equally convinced that a man's contribution depends just as much on satisfactory working conditions as it does on the size of his pay packet.

Let me touch on welfare for a moment. Wherever a company's financial resources are such as to make it possible, I believe that attractive canteens should be attached to all factories; it is surely well that workers should have at least one good, hot meal per day at a reasonable price, in well-designed and clean, pleasantly furnished surroundings, and it is good management to ensure it; in many British companies it is part of the welfare policy to subsidise the cost of this meal, particularly for juveniles. A good factory medical service is an essential. I put forward these suggestions with a due sense of proportion. Some of them are difficult of implementation outside the biggest of big concerns.

Lord McGowan *Photo: J. S. Orr)*

Nevertheless, the difference between the "good" factory and the bad often amounts to just these things—regular consultation, job selection, reasonable amenities and other practical measures.

I detest talk about the "climate" within a particular industry—there are as many climates as there are companies. In a good company the workers will accept time and motion study, welcome mechanical aids, and allow redeployment without demur when it is shown to be necessary for the good of the company and the workers are convinced they are getting a square deal.

The status of the worker is another subject requiring attention. We in I.C.I. have made a pioneer attempt to solve this problem by forming a Staff Grade of workers. All workers of over three years' service and over age 24 are eligible for promotion to this grade, which carries special privileges, among them the maintenance of full wages for all certified sickness absence up to six months in any year and the entitlement to receive one month's notice should their services have to be dispensed with instead of the one week which is accorded to ordinary workers.

THE DISCOVERY OF PENICILLIN

Fleming—Discoverer of Penicillin, *by L. J. Ludovici (Andrew Dakers 15s.), is here reviewed by Dr. Trevor Williams, deputy editor of* Endeavour, *who contributes a penetrating and exceedingly well informed assessment of this great British achievement.*

THE penicillin story has been told so often by popular writers that it is curious that it has never been told well; Mr. Ludovici is unhappily no exception. Perhaps the reason is that scientists who know the facts often lack literary talent or inclination, while popular writers lack the scientific background indispensable for putting so highly technical a story in its proper perspective.

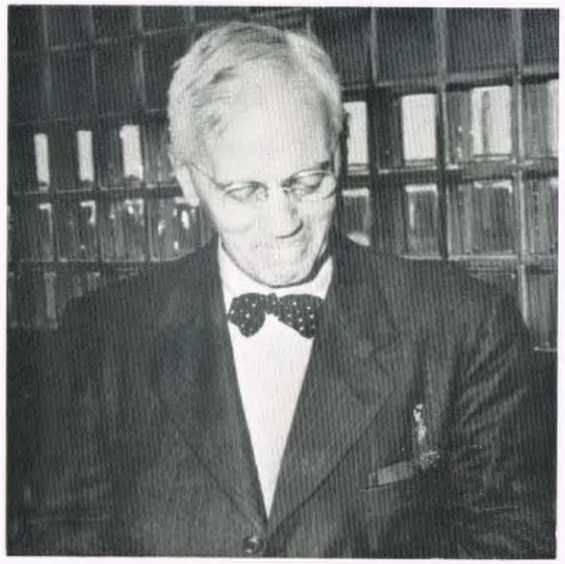
Three facts essential for a balanced account are not made at all clear in the present work.

The first is that many examples of the phenomenon of antagonism between micro-organisms had been described in detail decades before Sir Alexander Fleming discovered the particular one from which penicillin derived; many earlier attempts had been made to use them medicinally, some proceeding even to the commercial stage. The second is that neither Fleming nor those whose technical help he enlisted at the time of his discovery could have—and never claimed to have had—any idea of the absolutely unique properties of penicillin: he believed it had great possibilities for treating local infections but even for this eventually discontinued its use. The third is that the researches initiated by Florey and Chain at Oxford were absolutely distinct from Fleming's original researches (he took no part in them), and were the first to demonstrate that in penicillin we had a "magic bullet" *par excellence*—highly poisonous to many deadly germs but innocuous to man; they showed how penicillin could be extracted from the crude broth which alone Fleming had used, thus paving the way for industrial development on its present immense scale.

To say this is not to detract from Fleming's claim to fame, for only acute observation and the infinite capacity for taking pains, which is said to be the mark of genius, could have led him to make the original discovery; there were excellent reasons for his failure to realise at the time just how great his discovery was and to develop it for practical use.

Furthermore, as Mr. Ludovici makes clear, his researches in other fields, although sometimes controversial, are noteworthy. Justice requires not that Fleming's credit should be less but that more—far more—should be given to those who, approaching the problem *de novo*, discovered the true nature of penicillin, overcame the immense difficulties of its extraction, and were the agents solely responsible for the fact that it is today cheaply and abundantly available throughout the world.

The reasons why the correct version of the penicillin story



Sir Alexander Fleming

Sir Howard Florey

is difficult to disentangle are many and complex. In Mr. Ludovici's case, however, two, perhaps, suffice. The first is that among the ten names he gives of those who advised him on compiling the manuscript there is not one from Oxford. Even so, he might profitably have consulted an authoritative and not very difficult work* which appeared some considerable time before his manuscript must have gone to press; his principal sources cited are various highly imaginative popular accounts. The second reason is that he does not know, or at least does not make clear, the difference between antiseptics—suitable for attacking local infections—and chemotherapeutic agents—very much rarer substances suitable for introduction into the blood-stream for combating infections attacking the body as a whole. Fleming made very limited use of penicillin and as an antiseptic only; Florey and Chain showed it to be, when suitably purified, a chemotherapeutic agent of outstanding merit.

While these points are important in assessing the merit of the book as an historical document they do not mean that it is not a readable biography of a man who has had an interesting and notable career and was brought to the pinnacle of fame by an unexpected turn of events. Readable, that is to say, if one likes a highly dramatic and occasionally incomprehensible style, of which the following is an example: "Heart and mind in harmony, he stood four-square in the immoveable [*sic*] structure of his character."

So far as the Company is concerned, those who worked on the original bottle plant at Trafford Park, which supplied the first substantial quantities of penicillin powder ever available for extensive clinical trial, will be disappointed—though perhaps by this time not surprised—to find their very valuable contribution unmentioned. The story of the Company's contribution was, however, well told by R. A. Walmesley in the July issue of the *Magazine*.

As a matter of interest it may be recalled that this first relatively crude industrial material, so laboriously accumulated, began to reach the research team in Oxford towards the end of 1941. At that time only very few patients had previously been treated with penicillin, so scarce was it; the better supply position made possible more extensive clinical trials, started in January 1942, which were spectacularly successful. The supply position was also improved by the ready co-operation of Messrs. Kemball, Bishop & Co. Ltd., who sent regular supplies of crude culture fluid to Oxford for processing in the small plant built in the laboratory there.

The arrival of this material, which came by road in order to minimise loss of activity due to delays in transport, was a major event and one about which the whole laboratory routine centred for many months. When the precious liquid arrived, contained in milk churns, those concerned with processing it had to drop everything until purification had gone far enough to give a stable product. By these efforts it was possible to offer the first penicillin to the War Office in April 1942. In May 1943 extensive clinical trials were in full swing among casualties in North Africa. At the same time production was being undertaken in America by a number of firms.

The trickle of drug became a stream, and then a torrent; by D-Day sufficient penicillin was available for all casualties needing it. Very soon it was generally available for civilian use, and today none who need it must go without.

**Antibiotics*, by Florey, Chain, Heatley, Jennings, Sanders, Abraham and Florey, 1949. Chapters 15 and 20.

DO YOU KNOW?

By P. C. Allen (Group Director, Paints, Plastics and Leathercloth Divisions)

Here are some special Christmas teasers. Few people will know the answers to many of these questions; in fact the Editor's score was two. But many may think that these by-ways of learning culled from Mr. Allen's notebook are worth exploring.

Answers will be found on page 380

1. Of what are the Brass, the Rag, the Pay-off and the Jargoon all forms ?
2. Who said: "Whoever thinks of going to bed before twelve o'clock is a scoundrel" ?
3. Who said "The next war will be fought with atom bombs and the one after that with spears" ?
4. Who is Donna Lucia d'Alvadores ?
5. Where are the following pubs and hotels ? (*a*) Jack Straw's Castle, (*b*) The London and Paris Hotel, (*c*) Great Fosters.
6. Who was "the only man on either side who could lose the war in an afternoon" ?
7. Who wrote "favouritism is the secret of efficiency" ?
8. Who said, "Moderation is essential in all things, madam, but never in my life have I failed to beat a teetotaller" ?
9. Who said "Work hard but never work after dinner" ?
10. Who are the Caresser, the Growler and the Duke of Iron ?
11. Who said "Lord, I wonder what fool it was that first invented kissing" ?
12. Of what are the following all examples ? The Finger show, the Pines, the Birmingham.
13. Who said "The great inlet by which a colour for oppression has entered into the world is by a man's pretending to determine concerning the happiness of another" ?
14. Who said "A full belly and then to business" ?

Youth Camp

By Norman Vigars
(*who also took the photographs*)

Every year some hundred or so boys and girls from factories of Metals Division spend a week's camping holiday in a youth camp in Worcestershire run by the Division. We asked a Fleet Street photographer to join the camp. Here is his record of what he saw.

DURING the war, like many thousands of men, I spent a lot of nights sleeping under the stars or "'neath the flapping canvas of a tent." It became such a commonplace way of life that buildings with roofs and carpeted floors became remote things of another world. In their peculiar nostalgic way the soldiers yearned for the comforts of civilisation, often remarking that this was the last bit of camping they would ever do. How many have, since those eventful and now fast retreating days, forgotten their jocular vows and have gone again under canvas—voluntarily this time, in holiday mood?

Last summer I was asked to visit the youth camp in Worcestershire run by Metals Division for the junior employees. It was hinted that an hotel was available in the nearby town of Tenbury Wells, but if I really wanted to get to know the camp—well, there would be room for me in one of the tents.

The latter was the obvious choice, if only on the grounds of

SPORTS DAY *on the camp grounds at Tenbury Wells in Worcestershire*

convenience. But there was more to it than that. I was to go back ten years, become younger for a few days and take part in what we put down in our mental diary as an experience. It was a most enjoyable experience.

As I drove into the boys' camp site, which lay by a river in the wooded hill country of Worcestershire (an identical camp for the girls lay two fields away) it was all there. The flag post, the semicircle of bell tents, square officials' tents and a row of smoking field kitchens by the big marquee. It was the fun of military life over again with none of the restrictions.

The easy-going comradeship of living out of doors is coupled with the atmosphere of holiday; where time is unimportant and you can do more or less what you will at any hour of the clock.

The camp was in its twenty-second year, with only a break for the war period. Among the officials were men who had started camping as boys in their apprenticeship days. One of the first persons I met was a veteran from the first ever camp —Norman Love, still washing up. Norman had done most official duties throughout the years. He was now washer-up because it was all one to him, and as he said, "Someone must do it." He would not miss the camps whatever the weather or other commitments.

An hour after I arrived, the motor coaches drove up that had taken the young folk out for the day. These boys and girls poured back into the camp as though it were an old home.

No one walked in alone. There were pairs of younger ones, on their first camp, who had made one particular friend and were together for the trip. The larger groups, mostly around 16 years old, galloped in like lively colts, whooping and laughing. It was among these that I heard fragments of French and German and realised that this was an international affair.

There had been French boys in the camp in previous years, but for the first time a party of German lads had been invited. They were a huge success and had enjoyed themselves as only young folk can away from home for the first time. I watched the playful bear-fighting around the queue at Emlyn's shop.

The French boys, a very gay and carefree crowd, were practising their English with a Welsh accent; the English boys were punctuating their jokes with *danke* and *bitte* to show they too had picked up some "lingo." It was all very spontaneous.

That same evening, with a substantial tea disposed of and a few of the Romeos off to make dates, the sporting enthusiasts carried on with heats of the inter-tent five-a-side football. This, together with evening sing-songs, had formed two rituals with the camp that had grown over the years.

If a football team was a man short, an official would be dragged in by the boys. All protests about short wind and advancing years would be blandly overcome by the youngsters. One evening the Campers *v.* Tenbury match roused considerable excitement, and several miniature "Hampden roars" were set up by the handful of spectators. The locals loved it.

(*Left*) *Camp cook Ernie Ball.* (*Right*) *Camp commandants C. V. Dodgson and Lucy Hirst.*

Games formed quite a part of the afternoons and evenings, led by ex-footballer Billy Thayne and Eric Swainson. It was

TUG OF WAR. *The victorious team at their final pull.*

NECK-AND-NECK FINISH *to the wheelbarrow race.*

something to see the jovial, bespectacled Billy explaining the finer points of offside rules to the French contingent.

The games officials, with Jean Ward acting as liaison for the girls' camp, had their heyday at the open sports meeting held on the Friday. This is another highspot in the camp, when several coach-loads of families and folk from the works come down to cheer, see how their offspring are behaving, and eat a high tea in the main marquee.

The sports covered most events, and while there was plenty of cheering for the straight athletics it was the novelties that made the day. The French and German boys, once a mixed wheelbarrow race had been explained to them, hurled themselves into this with considerable abandon. The result was chaotic, only outdone by the next event—a chariot race. In this the boys, in teams, formed themselves into a sort of linked pyramid with a girl (a brave girl) riding on top with reins. This ended in a complete shambles, but fortunately there were no casualties for Doc Duncan or his medical aide Dick Cleaver. The Doc, in

FUN AND GAMES *in the river. Swimming in the nearby river was one of the most popular daytime events. It was seldom that the home-made raft was in a horizontal position.*

immaculate white drill kit, assisted with the sports and was particularly talented at running the tug of war heats. The final of this event, won by England against the visitors, was an appropriate peak to end the days' events.

The siting of the two camps was, I thought, particularly well chosen. The fields were bordered on one side by the narrow country lane and on the other by the river. This latter was really little more than a large stream, but the natural formation of small lagoons made it ideal for swimming.

The largest pool formed on the edge of the girls' camp, and even in the dullest weather one heard shouts and splashes coming from that direction.

The comparatively large number of officials for the two camps meant that the boys and girls were relieved of almost all duties. I believe that for the ten days one's turn at a fatigue came round only once. Such jobs as had to be done were attacked with as much vigour as five-a-side football. The German boys in particular seemed very happy "spud-bashing" and singing those rather sentimental songs peculiar to their country.

SHOE CLEANING *for some, the writing of letters for others. It is all part of camp life.*

One can use a lot of superlatives on a show like this when genuinely enjoying it, but some particular words must be said about the food. Those campers must have been the best fed under canvas that summer.

Big, jovial George Butcher for the boys and catering expert Rene Yates for the girls were quartermasters. They did their charges well. At their morning conference together one caught fragments like "one hundredweight of bread—right—seven hundredweight of potatoes—we need a few more—a hundred eggs," etc.

EVENING SING-SONG—*one of the most popular features of the camp. Quartermaster George "Butch" Butcher leads the boys and girls.*

The other side of the picture, the cookhouse, was run by another fine camp institution. For twenty years now old soldier Ernie Ball had been cooking for the I.C.I. camp. Most of his stoves were in the open, but, assisted by his son Ernest and son-in-law Arthur Howall, he produced three ample and beautifully cooked meals come all weathers.

In the girls' camp cooking was in the capable hands of two motherly ladies, Mrs. McCardle and Mrs. Parker.

I mentioned earlier the evening sing-songs. There was one almost every night at the slightest pretext. It was usually about 9 o'clock when the young people were back in camp. By the light of hurricane lamps and clutching mugs of cocoa they thundered out both old and new songs. I was amazed that they all knew the words. Accompaniment was usually piano and accordion. One evening the officials (including the visiting journalist) performed a pantomime version of "The Music Man" as an interval item. It nearly brought the tent down.

The last ritual at night was the collecting of lamps from the tents by the duty officials. As they went their rounds, the flickering lights growing more at each stop, they called out their good-nights and the excited chatter from within slowly subsided. End of another good day.

To have named any of the campers would have been difficult for me, for I should not have known where to stop. I knew most of them by some amusing little idiosyncrasy of their own.

I have not mentioned all the officials who worked so hard behind the scenes, not only during the camp but before and after. Most people connected with it will know the two jovial rascals who looked after the engineering side, the marquee workers in both camps and the never-failing first-up-last-to-bed transport man.

The two people who must have been most gratified when they saw the campers enjoy themselves are ex-naval Commander C. V. Dodgson and ex-A.T.S. Senior Commander Lucy Hirst. As commandants they jointly ran a show that anyone connected with youth welfare would justly admire.

It is to them I say "Thank you" for a most pleasant assignment.

LIGHTS OUT. *The lamps are collected from the boys' tents, the last task of the administration staff.*

Piero di Cosimo
(1462–1521)

Manchester City Art Galleries

THE ADORATION

THE NATIVITY

By the Editor

Photographs by courtesy of the Trustees of the National Gallery

FOUR immortal painters, two of whom lived nearly 500 years ago, depict in this issue the scene at the birth of Our Lord: to the Italian from Florence, Piero di Cosimo, the birth is an occasion for reverence; to Piero della Francesca, the Italian from Umbria (about 100 miles south of Florence), it is an occasion for singing; to the Flemish painter, Jan Breughel, an occasion for the gathering of a large crowd to do homage, the kings kneeling in their robes; and to the Dutch painter, Rembrandt, an occasion for simple wonder.

Each of these painters has imagined the Nativity in terms of his own local surroundings. The background of the Umbrian picture is the hilly, rather barren, country of this part of Italy. In the Breughel picture there is a wealth of architectural detail, the inspiration of which is clearly the cities of Brussels and Antwerp, which Breughel knew so well and which he had no doubt learned to think about in terms of painting from his father Pieter, who rose from peasant upbringing to renown as a painter, with his two sons Jan and Pieter almost as famous as himself.

But perhaps most people will love best of all the Rembrandt picture—for its simple natural interpretation of the birth of Our Lord, away from all pomp and ceremony and stylisation, with the Holy Family and their friends looking at the infant Jesus by the light of a lantern in a simple farmyard barn.

ADORATION OF THE KINGS, *by Jan Breughel the elder* (1569–1642)

THE I.C.I. MAGAZINE DECEMBER 1952

ADORATION OF THE SHEPHERDS, *by Rembrandt* (1606–69)

I.C.I. NEWS

THE LATE SIR FREDERICK KEEBLE

We announce with regret the death of Sir Frederick Keeble, C.B.E., F.R.S., on 19th October. Until he retired in 1932 Sir Frederick was chairman of the I.C.I. Agricultural Committee and director of Jealott's Hill Research Station, which he was largely responsible for founding.

Mr. S. W. Cheveley, Chairman of Central Agricultural Control, writes:

"Keeble has left behind him in Jealott's Hill, and all that has flowed from it, a memorial that few have equalled and none surpassed in living memory so far as British agriculture is concerned.

"It was in 1927 that he was persuaded by his great friend Sir Alfred Mond to join I.C.I. and to found their agricultural research organisation. He was then Sherardian Professor of Botany at Oxford and was in his 58th year. He had received the highest recognition for his biological work, was the author of several delightful and provocative books based on his researches, and had greatly assisted food production in the 1914–18 war; but agriculture, and in particular the use of fertilizers, was rather a new field for him.

"Mond and Keeble were visionaries who foresaw the need for increased food production at home and throughout the Empire. Keeble brought to this crusade a wealth of experience and energy. Within an incredibly short space of time Jealott's Hill was acquired, the research buildings erected, and a staff of young men recruited. Looking back, it is easy to see how wise were his plans. Among that staff were H. J. Page, who became head of the Imperial College of Tropical Agriculture; S. J. Watson, now Professor of Agriculture at Edinburgh; Geoffrey Blackman, now Professor of Agriculture at Oxford; Martin Jones, Professor of Agricultural Botany at Durham; and Sir William Gavin, Agricultural Adviser to the Government during the last war.

"He formed an Empire Grassland Association under the direction of Lord Bledisloe. He started, with Professor T. B. Wood, the first experiments on grass drying and initiated widespread trials on the intensive production and use of grass. His report on South African agricultural requirements was twenty years ahead of his time, and he sent men to help develop the lands of New Zealand and Australia.

"It is true to say that the increasing interest in the use of fertilizers, and in particular the development of grasslands, in the English-speaking world owes more to Keeble than to any other man, and Britain's position as the leading exponent of grassland techniques was founded on his work.

"Keeble was at his best in the meetings of the research staff in London or at Jealott's Hill and in making his brilliant after-dinner speeches. He alternated between occasional arrogance and extreme kindness, and because he could never suffer fools gladly he made some enemies but also many friends. None could help but respect his profound knowledge, ability and high courage, and through the years a deep affection grew up for 'Freddie.'

"A year ago there was a reunion dinner in London, when many of his old staff came together. How delighted we were to see this ever-youthful, vital person with his white hair, fresh complexion, blue eyes and the blue ring he always wore. We shall never forget the way he spoke to us after that dinner, words of kindly wisdom, of courage and of great foresight."

Long Service Awards in Paris

I.C.I. (France) has now joined the venerable ranks of companies within the I.C.I. organisation whose staff have received long service awards. These were presented on 18th September by Mr. Robin Todhunter, Overseas Director, at a pleasantly informal party in the offices of I.C.I. (France). The little ceremony was attended by the entire Paris staff of I.C.I. (France) and Laboratoires Avlon, and was followed by a glass of champagne all round.

The two employees who received awards were Monsieur J. Froissard and Monsieur V. Lemonnier. Monsieur Froissard is the chief sales representative for the Paris area, and has the rare distinction of being bilingual in French and English.

Mr. Todhunter presents a Long Service Award to M. Lemonnier. Behind them is M. Froissard.

Monsieur Lemonnier is foreman of the warehouse and mixing plant at Rouen. In 1940 he was very active in helping British soldiers and airmen to escape. The Gestapo finally caught him and he was sentenced to four years' imprisonment. He served the first year in solitary confinement and was then moved to a concentration camp, where he did two years' forced labour. Shortly before the end of the war he was released and he immediately went back to his job at Rouen in time to do good work in salvaging the stocks when the warehouse caught fire during the allied advance.

I.C.I. (France) was known as Etablissements S. H. Morden & Cie. until 1st October, 1949. "Mordens" began as agents for the British Dyestuffs Corporation and later became a subsidiary company of I.C.I. During the German occupation the company naturally had a lean time and numerous troubles (including the appointment of a German "administrator"), even though it tried to masquerade as a French-owned company by transferring, in its last moments of freedom, most of the shares from British to French hands.

With the liberation its problems did not immediately disappear, but gradually these have been, and will be, overcome. Now I.C.I. (France) is looking forward to further occasions marking the loyal service of its staff.

Mr. P. C. Allen

As announced in *The Times*, Mr. P. C. Allen, Group Director for Paints, Plastics and Leathercloth, was married at Welwyn Garden City on 21st October to Señorita Consuelo Linares Rivas.

HEAD OFFICE

Mr. J. H. Cotton appointed Treasurer

Mr. J. H. Cotton has been appointed Treasurer of the Company, with effect from 23rd October. He succeeds Mr. J. L. Armstrong, who was recently appointed Finance Director.

Mr. J. H. Cotton

Mr. Cotton has been Deputy Treasurer since October 1947. Before that he spent five years as head of Pensions Department and made a wide circle of acquaintance among staff and workers which he still values highly.

Born in Wales 54 years ago, he was educated at a Welsh school, from which he won a mathematical scholarship to St. John's College, Oxford. Thereafter he joined the Army, serving with the Welch Regiment in France, and after demobilisation took up his scholarship at the beginning of 1919. At Oxford he read mathematics and some physics, and after taking his degree joined the Inland Revenue as an Assistant Inspector of Taxes.

Sir William Coates, who had also come from the same branch of the Civil Service some years before, invited Mr. Cotton at the end of 1927 to join the Company's Taxation Department. This he did and in 1936 became an assistant treasurer. The following year he was made deputy head of Pensions Department under Mr. J. M. King. He was appointed head of the department in 1942.

Mr. Cotton is married and has one son. He lives in Hertfordshire.

I.C.I. Development Controller

Following the retirement of Lieut-Col. L. J. Barley, the duties of I.C.I.'s Overseas Development and Home Development Controllers have been combined under Mr. L. S. Mumford, who has been Home Development Controller since 1944. He will now be known as the Development Controller.

Mr. L. S. Mumford

Aged 46, Mr. Mumford was born and educated in London and took his degree at University College. While he was doing research work there on carbon monoxide he was "spotted" by Dr. Freeth and in 1929 joined Synthetic Ammonia and Nitrates Ltd. (as the Billingham Division of I.C.I. was then called).

At Billingham Mr. Mumford was for a short while engaged on research on water gas but was transferred to the Works, where he remained until 1935, in the course of which time he had experience of most of the manufacturing operations. He was then transferred to Techno-Commercial Department and subsequently passed in succession to Technical Service and Sales Control Departments. He was transferred to Head Office Development Department in 1942.

During his time at University College Mr. Mumford was captain of the University College and Hospital Rowing Club and rowed in the London University boat. During his early years at Billingham he rowed on the Wear for Durham City but now he has taken to the more leisurely pursuits of playing the piano and going to the ballet.

Mr. Mumford, who lives in Southgate, is married and has two children.

BILLINGHAM DIVISION

Apprentice qualifies for Pilot's Licence

An apprentice plater from Engineering Workshops who recently won a flying scholarship awarded by the Royal Air Force has completed his initial flying training course and qualified for a private pilot's licence. Now a flight sergeant in the 266 (Stockton) Squadron of the Air Training Corps, he is 17-year-old Frederick Ramage. Until he began a full-time course in engineering at Constantine College, Middlesbrough, in September, he was employed at Billingham in the platers' shop.

Fred Ramage was granted his flying scholarship only after passing three special aptitude tests, undergoing a strict medical examination and satisfying an R.A.F. selection board. He was up against strong competition, for members of the A.T.C. and combined cadet force units throughout the country applied for the small number of places available.

Fred began his flying training at Woolsington Airport, Newcastle-on-Tyne, last June. The course started with a two-week stay at the airfield, and under the tuition of his ex-R.A.F. civilian instructor Fred has since flown for more than 30 hours on a total of 49 dual and solo flights in Tiger Moth trainer aircraft. His 17 hours solo included a cross-country duration flight and the 45-minute flight which completed the course.

Motor-cyclist wins Novice Award

Competing with experienced riders from all parts of Britain, a 22-year-old member of the Synthonia Club Motoring Section took part in a two-day motor cycle reliability trial while on holiday in the north of Scotland and won a trophy as the best novice in the competition.

He is Alan Walker, a foremen's clerk in Area 1, Civil, of the Engineering Works Services section, and he rode against 57 other motor cyclists in the 200-mile trial organised by the Inverness Car and Motor Cycle Club over a course from Inverness to Fort Augustus, which includes some of the roughest country in the Highlands.

Riding a 490 c.c. Norton, Alan was in the saddle from 11 a.m. until 7.30 on the first day of the trial except for a fifteen-minute break for lunch, and during that time he covered more than 125 miles—many of them through rock-strewn gullies or over open moorland. The second day's riding was equally strenuous, although over a shorter course, but Mr. Walker considers that winning the trophy, his first in any motoring event, made it all worth while.

Foundry Labourer hits the Jackpot

When foundry labourer Mr. W. M. Galloway returned from the Engineering Workshops telephone to which he had been hastily called he looked so white and shaken that his workmates thought he must have received bad news.

But they were wrong, for although the news he heard gave him a shock, there was nothing bad about it. He had won £10,202 in a national football pool.

Until he told the Foundry and Pattern Shop manager why he had been called to the telephone none of the men in the foundry knew that Mr. Galloway "had a coupon up." He had told no one he had a correct forecast "in case anything went wrong."

They were quick to ask jokingly, "When are you leaving work?" But they were wrong, for when interviewed later Mr. Galloway had already decided to invest the money and continue with his job in the foundry.

"The money will provide a fine start for my three youngsters," he said; "and, anyway, if I stopped work I would not know what to do with my time."

This is Mr. Galloway's seventh pools win in six months; the others were small wins at the end of the last football season.

There were two other substantial wins in the factory the same week. Mr. "Paddy" Jarvis, of Casebourne Works Cement Plant, won £600, and Mr. A. Lavender, of Plastics Works, won £300.

DYESTUFFS DIVISION

Director Retires

Dr. R. May, who has been a member of the Dyestuffs Division Board since 1948, retired in September, but has been appointed a Consultant to I.C.I. for the next three years.

Dr. May has devoted the whole of his professional life to the organic chemical industry. During his career in Germany, the Far East, and America he accumulated experience on a wide variety of subjects, becoming an authority on such matters as perfumery chemicals, photographic chemicals, plastics and, above all, dyestuffs intermediates. His wide experience of chemical manufacture led to his appointment as a special consultant to the Division when he joined the Company in 1940.

Dr. R. May

Nylon Works Actress has B.B.C. Audition

Miss Winifred Tibbey, a Works Council minute writer for Nylon Works, has had a B.B.C. audition with a view to her appearing in B.B.C. Repertory Company productions from the Northern Region.

Miss Winifred Tibbey

Miss Tibbey is already well known on Tees-side as an amateur actress and singer, and she was formerly a member of the Synthonia Drama Section. She came to Billingham five years ago from Ottawa, Canada, where she had lived for the preceding few years.

Miss Tibbey went to Newcastle for the audition, which was held in the B.B.C. studios there. She found that being faced with a microphone in an otherwise empty room was not so terrifying as she expected, and with recording engineers and members of the selection committee in the next room as her only audience she acted excerpts from plays in which she had appeared, in addition to giving a number of her own character studies.

B.B.C. officials say it will be some time before the results of the audition are known. But if it is considered successful Miss Tibbey may eventually appear in "Curtain Up" and "Saturday Night Theatre" programmes broadcast from the Northern Region by the B.B.C. Repertory Company.

Meanwhile she continues with her local activities, which include singing with a choral group which visits hospitals in the district to entertain the patients.

Basketball Coach

Mr. Gerald Brearley, who is in the Division Supply Department of Dyestuffs Division at Hexagon House, has been on an Amateur Basketball Association course at Lilleshall Hall and has been recommended for Honorary Grade I Coach. He already had his Grade II Coach and Referee's licences as the result of a previous course he attended there. His interest in basketball started during his army service.

Mr. Brearley has recently been associated with Halifax Vilnius, a composite team which reached the semi-final of the Open Championship this year. He is a playing member of the Halifax Basketball Club.

Mr. Brearley in action during a basketball game

The popularity of basketball spread quickly after its invention in 1891, and now 61 countries are affiliated to the International Amateur Basketball Federation, and basketball takes its place with other sports in the Olympic Games.

GENERAL CHEMICALS DIVISION

Australian Olympic Cyclist in Runcorn

Following closely on the visit to Castner-Kellner of the Australian Olympic swimming team comes another Australian representative. He is Mr. James Nevin, of the Olympic cycling team. The main difference between the two visits is that while the swimmers dropped in for a couple of hours, Mr. Nevin's visit is likely to last for a couple of years. He is an employee of I.C.I.A.N.Z., Yarraville, and has come over as a trainee engineer for experience in heavy chemical engineering.

His sideline is cycling, and as well as being in the Olympic team he was the 1951 Victorian and Australian 125-mile road champion. He was 11th this year in the amateur cycling championship. In order to compete he cycled from Helsinki to Luxembourg *via* Sweden, Denmark and Germany.

There is no danger of Mr. Nevin having no practice and losing his form while in England, for his bikes have come with him and he intends to be off touring and training in his free time. Derek Davenport, one of our own keen cyclists, is arranging for a spin into Wales shortly to show him round, and no doubt he will be making many more tours of the country-side during his stay with us.

Mr. Nevin's reception in Runcorn has given him a good impression of Britain. In his own words: "Everyone I've met has been only too helpful, and nothing has been too much trouble."

Castner-Kellner's Olympic visitor: Mr. James Nevin

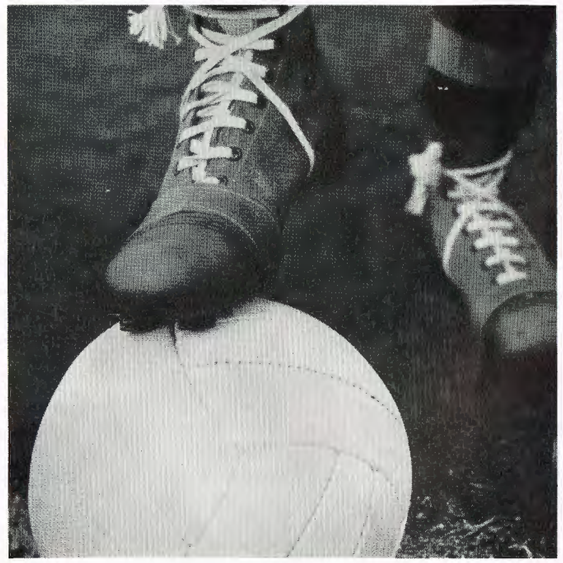
LEATHERCLOTH DIVISION

'Vynide' takes the Field

Both rugby and soccer balls are now being made in white 'Vynide' and are proving first class in use.

The 'Vynide' is being made specially for the job. It has the great advantage of not absorbing moisture, and thus maintains its original weight instead of becoming greasy and heavy. In addition, it does not hold the mud and is thus easier to see.

Rugby balls made of 'Vynide' have been used by Featherstone Rovers and also in the New Zealand *versus* British Empire match at Stamford Bridge last year. Soccer balls in 'Vynide' were used by Manchester United and Huddersfield Town at the end of last season and have since been given a thorough testing by the London County Council on gravel-surfaced school yards.



The Football Association has had two balls under test and observation, and it seems likely that the 'Vynide' ball has come to stay.

LIME DIVISION

Quicker Loading at Raynes Works

With the completion of a construction project that has kept 170 men busy for the past year the Division's Raynes Works in North Wales becomes fully mechanised.

Previously only the quarry itself, which adjoins the main coast road between Abergele and Colwyn Bay, was mechanised; the somewhat old-fashioned arrangements for loading the Fleetwood-bound steamers of the Alkali Division meant that only 200 tons of limestone an hour could be loaded. Now, thanks to the new construction, this rate has been more than trebled, so that two ships can comfortably be loaded on one tide. And much more stone can now be stored against the vicissitudes of weather and tides.

The most important parts of the job were the erection of a new stone screening plant, the preparation of large storage bunkers over a reinforced concrete tunnel, and the housing of more than a mile of conveyor belting.

Some of the toughest work was the excavation of the tunnel, which is 320 yards long and contains some 1000 cubic yards of reinforced concrete; about 23,000 cubic yards of clay and 8000 tons of rock had to be removed by blasting and sheer hard work.

Viewed from the road above, the completed project gives the appearance of a neat working model, and it is hard to visualise that the conveyor discharging the stone to stock is over 100 ft. span and the bin over 79 ft. high. Hard to visualise, that is, unless one had worked on the job. For those who did, the reward came on 30th September, when the first cargo of stone was successfully loaded.

Buxton Actors Aid Church

Serious anxiety has arisen recently over the state of repair of the oldest and smallest church in Buxton, St. Anne's, which at the time of its establishment over four centuries ago was the original parish church. Among other efforts to raise funds for the church's restoration perhaps the most noteworthy was a recent production by the Buxton branch of the British Drama League of *The Seventh Veil*, in which several members of the Division's staff took prominent part.

For Mr. C. D. Flanders, the Division's Sales and Transport Manager, the first night must have been a particularly trying experience, despite his long and successful career in amateur theatricals. For not only was the play held in the Opera House, the largest of Buxton's many auditoria, but this was the first amateur performance of what is—as everyone who saw the film will recognise—no easily acted piece. The results, however, more than made up for many earlier qualms. There were splendid audiences at each performance, and a considerable sum of money was raised for the church.

This success will, it is hoped, encourage all the members of the staff who took parts in the production, both on and off the stage, to do even better during the forthcoming Drama Festival Season than they did last year at Blackpool, when Mr. Flanders' production of *By Candlelight* won third place in the Northern Festival.

METALS DIVISION

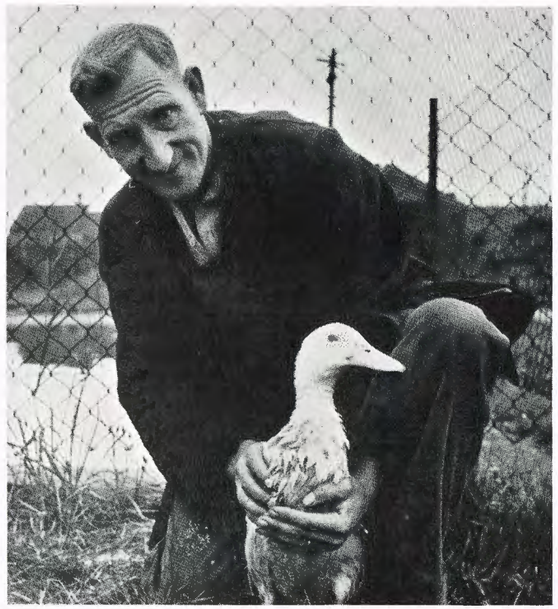
Squatters at Witton

Imagine a secluded spot with green lawns; blackbirds nesting in a chestnut tree; cats prowling round in search of prey; families of rabbits taking the air; tiny fish darting among the green leaves in the bottom of a pool; and, oblivious of all the attention he is receiving, a pure white duck known (surprisingly !) as Donald. No, this is not a description of some Warwickshire beauty spot, but an account of the wild life to be found in the grounds of the Loading Department at Kynoch Works, Witton.

Keeper of the menagerie is Mr. Albert Richards, groundsman of the department, who is obviously as proud of the pets as he is of the lovely flowers that deck the borders around the buildings. Mr. Richards is not the only guardian of this unusual collection of animals, however, for the whole department takes a keen interest in its welfare, bringing titbits to feed the host of hungry mouths.

It must be admitted that the term "pool" to describe Donald's domain is a little generous, but the sunken emergency water tank fulfils its purpose very well and he seems content in his new surroundings.

Although this large family generally lives together in peace, occasionally the rabbits get a little too tame and the cats too wild, with the result that the troupe of about sixty rabbits suffers a bereavement. There are several theories as to where the rabbits originally came from: some say that they are descendants of the rabbits that lived in Witton long before the Loading Department was built; another theory is that they entered the factory in packing cases and such-like—in fact,



Donald with Mr. Albert Richards

one young rabbit was ceremoniously received at the factory recently in an empty shell case!

Another point of interest in the precincts of the Loading Department is the group of three fir trees planted fifteen years ago on the retirement of the chief engineer of Kynoch Works. These three trees are all that remain out of the total of 1000 which Mr. Peter Frank bought at a penny each and which were planted in different spots throughout the factory; even after fifteen years' growth the trees are still quite small.

NOBEL DIVISION

Pigeon goes Native in the Pacific

I.C.I. pigeon owners have been in the news in recent months with stories of record-breaking flights. But surely none of them will be able to cap the story of Mr. Harold Hopkinson's pigeon, which was released in Newhaven and is now thought to be basking on an island 4000 miles away.

Mr. Hopkinson sent the pigeon to be released in Newhaven in July. It never returned, and he had given up all hope of seeing it again when he received a letter from the geography master of the Frecheville County Secondary School, Sheffield.

The connection between Mr. Hopkinson's pigeon and a geography master is hard to grasp at first; it becomes little clearer even when one knows that the Frecheville School has "adopted" a ship of the Pacific Steam Navigation Company, s.s. *Flamenco*, whose master is in the habit of sending letters to the geography classes. But it was in one of these letters that news came of the missing pigeon.

The letter, posted in the Panama Canal Zone, said that a pigeon with a damaged wing had boarded the *Flamenco* while she was off the south coast of Ireland. The number on the leg-ring identified the bird as Mr. Hopkinson's.

Mr. Hopkinson naturally got in touch with the master of the *Flamenco*, and the latter wrote at intervals to report on the pigeon's condition. The sailors were sorry for their injured passenger and made a box in which it could live and heal itself. They also gave it plenty to eat. The wing began to recover strength, and after about a week's convalescence the pigeon was able to fly around the ship. Every morning at daylight it would fly off and return in time for breakfast. It made many such flights every day, but at nightfall it came home to roost in one of the lifeboats.

At Panama special rations were bought for the pigeon, and everyone was hopeful of keeping it safely aboard until the ship reached home again. But alas, as so often happens, the lure of the Pacific was too much. As the *Flamenco* passed a particularly alluring island the pigeon flew off to take a closer look—and never returned.

Mr. Hopkinson's pigeon is still missing. So if you should see a guilty-looking bird with a heavy sun-tan . . .

Champion Leeks

Mr. Edward Phillips, a storechecker at Sabulite Factory, is justly proud of his prowess as a leek-grower. In the recent annual local show at Easington Village his pair of pot leeks were first in twenty-five entries and gained the prize of £13.

Mr. Phillips' leeks had almost "Mr. Universe" measurements. The white measured 4 in. in length, and the circumference of one leek was 10¼ in. and of the other 10⅛ in.

In the 1951 show Mr. Phillips entry was fifth, and in the 1950 show he won third prize. Last year he was unfortunate. He reckons that his leeks were the best he had ever grown, but shortly before the date of the show some vandals entered his garden and slashed them all. Mr. Phillips is also a keen flower grower, and he won first prize for the best bunch of flowers. All his spare time in the last thirty-two years has been devoted to gardening.

PAINTS DIVISION

Digging up the Past at Slough

Workmen excavating the site for a new Dispersion Unit at the Slough factory have uncovered, at a depth of fifteen feet, the cunningly wrought iron sign shown below. As the history of Slough's connection with varnish-making only goes back to 1919, conjectures about the origin of the sign have been numerous. Inquiries have now established that this buried relic is a "missing link" which extends the recorded history of Paints Division back to the days of the French Revolution.

One of the firms whose growth and "intermarriage" eventually resulted in the formation of I.C.I. Paints Division was Naylor Brothers. Until now it has always been assumed that

The historic sign uncovered during excavations at Slough

Joseph Naylor started selling varnishes in St. James Street in 1781. Joseph Naylor's great-grandson, Mr. Philip Naylor, who is Paints Division's present production director, remembers seeing the varnish-maker's sign hanging there when he was a small boy.

But now he finds from family records that the sign must first have seen the light of day over a shop in the Waterloo Road. There Joseph Naylor carried on the business of decorator; although he mixed paints to his own formula, he never attempted to sell them. But in 1796 he gave employment to a Frenchman who had fled to this country to escape the reign of terror which followed the French Revolution. That refugee was a varnish-maker, and he repaid his benefactor by giving him the secrets of preparations "for Beautifying Woodf for Domeftick Purpofes."

Joseph promptly took down his Painter and Decorator sign, erected the one above, and started to make and sell his own varnishes. The French refugees had founded a colony at Belle Isle, off the Caledonian Road, so Joseph purchased a small factory there, and three times a week he and his satellites packed themselves into a cart and went off to the varnish works.

How do we know all this? Looking through his family records to establish the age of the sign, Mr. Phillip Naylor found an old book bound in stout leather and sealed with a brass clasp. It is his great-grandfather's "formula book," and there, in beautiful script, are the "receipts" and "methods" given him by the old French craftsman, copied out, as the book is careful to state, at 18 William Street, Waterloo Road.

When Naylor Brothers moved to Slough in 1919 the site consisted of two large sheds, one on each side of the railway siding. It was outside one of these that the old sign was dug up last month.

Office Services Girl may be Ballroom Queen

Miss Rita Atherton, of Division Office Services Department, and her fiancé, Mr. Gerry Hannaford, have danced their way into the area finals of the National Ballroom Queen contest to be held in February.

Miss Atherton and her partner were awarded their place in the area finals for their brilliant linking up of a waltz, foxtrot and quickstep. She only took up dancing last year, but says "With hard work and ordinary luck I hope to be giving you a survivor's account of the grand final of this competition for the 1953 title."

Miss Rita Atherton and her partner

Trainer of Champions is Champion Plucker

Mr. Stephen Joy, of Trades Workshop, Works Engineer's Department, Slough, is better known to the boxing profession as Steve Joy, masseur, second and trainer of champions. He also holds the unusual title of champion chicken plucker of Bucks, which he won last Christmas by plucking 112 chickens in seven hours.

Mr. Joy began and ended his own boxing career in the Navy. During the first world war, when he was attached to the physical training staff of R.N. Barracks, Chatham, he hung up his gloves to study the art of massage and the science of training boxers to reach peak form on a given day months ahead. When he left the service in 1924 he was snapped up by the Dolphin Gymnasium, the professional training camp at Slough which between the wars became one of the finest in the country. Here Mr. Joy helped to train champions Tommy Farr, "Midget" Woolgast, Eddie MacGuire, Don McCorkindale, Ben Foord and Marcel Thil for their title fights.

Mr. Stephen Joy

Only on two occasions was Mr. Joy lured away from the Dolphin—once to assist Al Foreman, the Canadian, to prepare for his Empire title fight, and again in 1951, when he accepted the post of gymnasium manager for Sugar Ray Robinson and his entourage at the Star and Garter, Windsor. After Robinson's fight with Randolph Turpin the defeated champion's manager invited Mr. Joy to become a permanent member of the "Sugar Ray circus." "I nearly fell for it," he says, "for they were a bunch of real gentlemen."

Mr. Joy holds a British Boxing Board of Control licence as a trainer and second.

PLASTICS DIVISION

Mr. C. S. Guthrie

The death on 1st November of Mr. C. S. Guthrie followed tragically soon the news that he had relinquished, because of ill health, the position of Division chief accountant.

Mr. Guthrie's career was overshadowed by his continual brave struggle against ill health. He joined Brunner, Mond and Co. in 1912 at the age of 14 as a clerk in the Accounts Department. When he was only just over 16 years of age he enlisted in the 5th Manchester Regiment, and during his service was awarded the Military Medal. He was also gassed, and to this beginning can be traced his ultimate illness.

After his return to the Company Mr. Guthrie was transferred to Billingham and promoted to the position of assistant accountant of Synthetic Ammonia and Nitrates Ltd., later to become the Billingham Division. During this period of his career his sporting ability was at its peak. As a cricketer he was known far and wide for his impeccable wicket-keeping and his ability to make runs, and his grim determination not to get out saved more than one needle match. His golf was of the kind that made him hard to beat at any time, especially if there was a modest side stake. Seaton Carew saw him play many a brilliant shot, and although he never got down to scratch there is no doubt that he could have done so but for the distraction of other games.

In January 1933, after several bad spells of asthma, it was decided that the mellower climate of the south might be kinder to his health, and he was transferred to be chief accountant of Fertilizer Sales in Head Office.

On 1st November, 1942, he was appointed acting chief accountant of the Plastics Division, and this position was confirmed on 1st January, 1946. From first to last Mr. Guthrie did not spare himself to ensure that his department was as efficient as human ingenuity could devise.

His advice was sought and respected by many of his seniors, and it was always his health rather than his ability which held him back. The Division, the Company, and the accounting profession are the poorer by his death.

Princess becomes Queen

Miss Angela Cawthorne (Distribution Dept., Wilton) was

(*Photo:* Middlesbrough Evening Gazette)
Saltburn Pier Queen: Miss Angela Cawthorne

elected Saltburn Pier Queen just before bathing stopped for the winter. She was presented with a cup, which she retains for a year, and also a plaque as a permanent memento of the event.

Last year Miss Cawthorne spent her holiday at Butlin's Camp, Skegness, and while there was made Camp Princess for the week; this entitled her to a further week's holiday at the camp and the chance to enter the finals. Unfortunately Angela had to get back to work, but she did receive a very handsome present to mark the occasion.

A.E. & C.I.

Bravery Award for African

At Modderfontein Works recently all the European and African employees gathered to witness the presentation of a watch as a bravery award to Mr. Piet Makabe.

Mr. Makabe, an African, was in a dope store at Modderfontein earlier this year when fire broke out. In this fire ammonium nitrate was burning. "When Piet saw the fire he wasn't afraid," said the factory manager, making the presentation; "he did not run away. He took the burning sack and put out the fire. The Company thinks he was a brave employee. The Company now wishes me to thank him in front of all the other employees, and we are going to thank Piet by giving him a present. This present we want Piet to have always, so that he can remember Modderfontein."

I.C.I. MALAYA

By Comet to Singapore

The prospect of flying on the first Comet flight to Singapore was an exciting one for Mr. M. F. Cutler, chairman of I.C.I. (Malaya).

"But in fact," says Mr. Cutler, "although it gave one a thrill to read in the captain's circular that the Comet was flying at 39,000 feet with a ground speed of 465 miles an hour and that the outside temperature was — 40° F., we might just as easily have been reading and drowsing in a favourite chair at the club."

The Comet left London Airport at 1.30 a.m. In order to adjust the domestic programme for the loss of 6½ hours between London and Singapore time Mr. Cutler and his fellow passengers were given breakfast at Rome airport at 3.45 a.m. Thereafter they had lunch in the air between Cairo and Bahrein, and dinner between Karachi and Calcutta. After seeing the sun rise at Rangoon they went on to Bangkok for breakfast and arrived at Singapore in good time for lunch. Total flying time was 18½ hours.

In Mr. Cutler's opinion stops for refuelling were the most tiring aspect of an otherwise quiet and comfortable flight. "Seven such stops, each of about an hour, contribute largely to the fatigue of the journey," he says. "With this disadvantage removed in later models of the Comet, we in Singapore will feel we are within as easy range of London as was Paris earlier in our lifetime."

ANSWERS TO "DO YOU KNOW?" ON PAGE 363

(1) The confidence trick. (2) Dr. Johnson. (3) Professor Harold Urey. (4) Charley's Aunt. (5) (*a*) Hampstead, (*b*) Newhaven, (*c*) Egham. (6) Admiral Jellicoe. (7) Lord Fisher. (8) Harry Vardon. (9) John Jacob Astor. (10) Calypso singers. (11) Jonathan Swift. (12) Tic-tac systems. (13) Burke. (14) The Duke of Wellington before a battle.

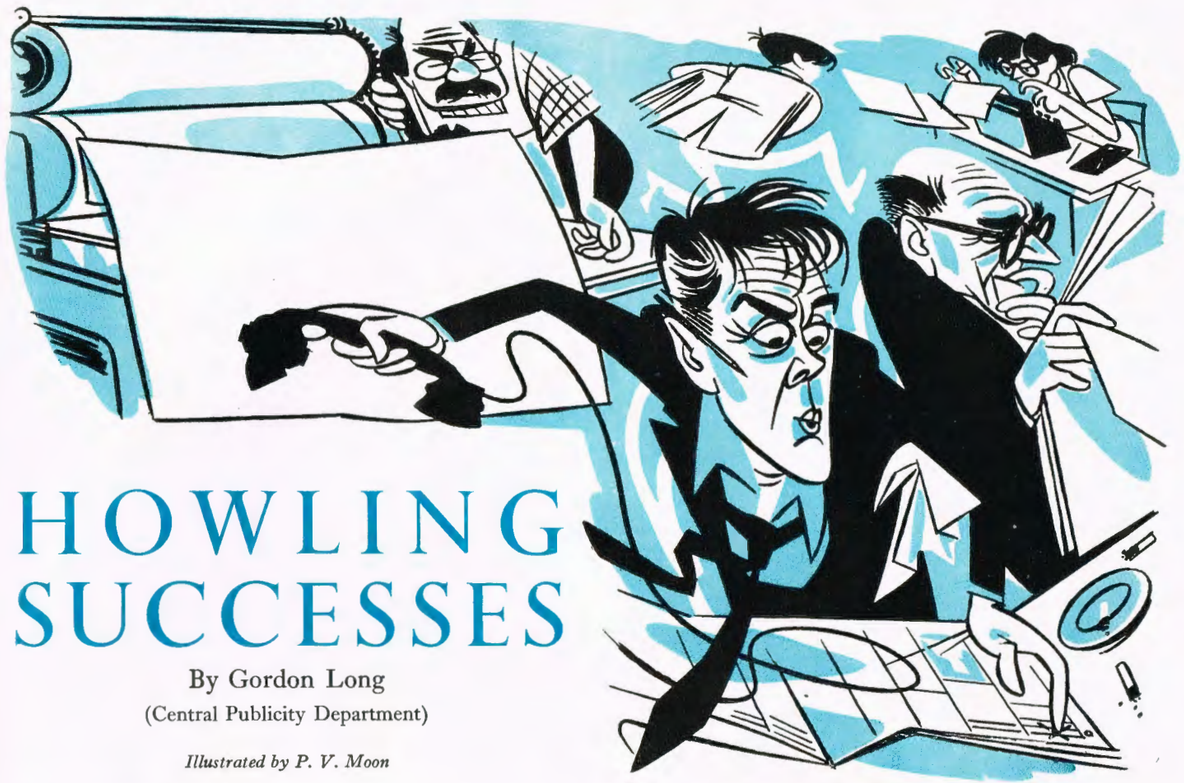
* * *

OUR NEXT ISSUE

Mr. S. P. Chambers, one of the three deputy chairmen of the Company, leads the January *Magazine* with an article that is likely to command an audience both outside and inside the Company. He draws attention to the grave danger of a fall in this country's standard of living unless the nation as a whole saves enough to be able not only to maintain but to increase the amount of capital which is behind the workers in the form of machines and equipment. His conclusion is that the only way of doing this is by a very substantial cut in Government expenditure and a consequent reduction of taxation.

Our colour article is on the breeding of canaries and budgerigars. The author is a well-known budgerigar breeder. How many people know that if a breeder is lucky enough to produce a bird of a new colour, it can be worth as much as £1000 ?

Next comes an article based on the Alkali Division experiment of furnishing a council house as a demonstration of how to obtain value for money in furniture. Lastly, Mr. K. B. Bartlett of Plastics Division contributes a satirical account of how the regimental spirit is built up in a Territorial camp.



HOWLING SUCCESSES

By Gordon Long
(Central Publicity Department)

Illustrated by P. V. Moon

"GRIPPEN on a fire bucket!" exclaimed my colleague, who specialised in strange oaths. "For heaven's sake, look at page 2!"

The time was a little past midnight in the office of a Very Important Paper, and we, its sub-editors, were scanning the first copies of the first edition which, its leaves still curling with static electricity, had just come off the whirling presses in the basement.

Dutifully we turned to page 2: I, perhaps, rather more hastily than the others, since I had had a special responsibility for that page that night.

We stood looking at the page. It seemed attractive—and harmless enough in all conscience—but suddenly a thin cry escaped the lips of the chief sub-editor. "Look," he said, with that icy calm which great men muster in great emergencies, "look at the radio programmes and the caption under the picture." We did so.

The picture itself was a characteristic study of the Prime Minister, but the description or caption beneath was somewhat surprising. It stated as follows:

This is Montmorency, who has recently been taken on the staff of the B.B.C. He will be paid 3s. 6d. a week and his job will be to catch mice in the B.B.C.'s kitchens.

Of course, the mistake was rectified later, but not before some tens of thousands of copies had been entrained for the far-flung parts of the country. On the following day, of course, life was a little uncomfortable for me. The editor had an unusually heavy mail, and for a brief spell I enjoyed the glare of limelight. But it passed over—a one-day wonder—for such an occurrence is less of a rarity than the layman would imagine. Perhaps you might like to know how howlers of this sort can occur even in a well-regulated newspaper establishment.

Take this particular incident as an example. The radio programmes had been one of my responsibilities on the night in question. In the early part of the evening I had searched diligently for any sort of picture which could be used to enliven the dull appearance which a mass of unrelieved type presents. Searching through the programmes I had discovered that our Prime Minister was due to address the nation after the 9 o'clock news. I had therefore sent a short note to that effect and a copy of his portrait to the relevant mechanical departments so that a half-tone block, suitably captioned, might appear in illustration of the morrow's radio.

About two hours later, however, the editorial messenger laid on my desk a picture of the sweetest and fluffiest kitten that eyes had ever seen, and on the back of the picture I read the story, which I have given you, of this young Montmorency. Who will deny that a kitten, and such a cute one as Montmorency, is not much closer to the heart of humanity than any Prime Minister? I took steps to substitute Montmorency and his picture for the Prime Minister.

Unfortunately Montmorency's caption reached the caseroom, where type is made up, before his picture, which did not, in fact, arrive there at all. The composing staff obeyed their instructions and substituted the Montmorency story for the other one, but in the unholy rush which precedes the birth

of every first edition of any newspaper the non-arrival of Montmorency's picture passed unnoticed.

So there we were, half an hour later, confronted with the dire results of a little lack of liaison. The mistake was made, and no power on earth could undo it. It is an ill wind, however, that blows no one any good, for I heard later that copies of that first edition were selling in some parts of the country at no less than 2s. 10d. each.

The first editions of the national newspapers are the places to find howlers. Unfortunately, as first editions are destined for the furthest parts of the country, not many people have the opportunity to savour the rich humour and variety which they present. Since so few complaints arise as a consequence of them, many journalists doubt whether these first editions ever go anywhere at all, and conclude that if they do ever reach any destination it is by ghost train to some never-never land from which no word can ever return.

The first editions are the repositories of the finest howlers for the simple reason that they do not, and cannot, receive the same careful scrutiny as is given to the contents of later editions. Some newspapers run off their first editions as early

Baldwin the mouse-catcher

as 9 o'clock at night, when, of course, they can be little more than rehashes of the contents of the last editions of the evening papers. Moreover, they are often put together in panic haste. Almost anything can happen in the first edition, and often does. In my eleven years in journalism I was responsible for or party to a number of other extraordinary statements.

I recollect once seeing a very well-known insurance company being described as "The General Accident, *Fish* and Life Assurance Corporation" (but only in the first edition).

I remember once reading a report of a rugby game into which an unexpected veterinary note had been introduced. It said:

> *Robinson got the ball neatly back from the scrum, and Smith, who was standing well placed to receive his pass, dropped a splendid foal.*

I recollect yet another occasion when a mistake occurred that reduced the loyal section of the staff to the most acute mental anguish but gave unfeigned delight to the rougher and less loyal elements.

The first edition carried two photographs which were exactly equal in measurements. Consequently the captions beneath them were identical in length. As you can imagine, it was the easiest thing in the world for these captions to become transposed in the fearful last-minute rush when the pages were being made up on that metal-topped table which the printer calls a "stone." In fact they did, and readers on the following day saw a photograph of the daughters of a belted earl, who, they were informed, had just gained a first prize and a highly commended at an agricultural show. Flanking this was a likeness of some exceedingly well-proportioned Ayrshire heifers who were, the caption said, the offspring of a famous belted earl, and had been photographed while taking part in a charity performance in aid of some church appeal.

None of the howlers to which I have referred had any serious repercussions, but others have played ducks and drakes with some unfortunate person's whole existence. There was, for example, the Case of the Sea Serpent. This story may be apocryphal, but it certainly ranks as one of the classics of newspaper howlers.

It arose, so they say, when one of the world's greatest newspapers appointed a new correspondent in some remote town on the coast—if I remember aright—of China. His first cabled communication was a story about a sea serpent which the newspaper ignored, it being beneath its monumental dignity to deal with intelligence of this childish order.

When, however, the new correspondent followed some days later with another cable about a mythical monster, his newspaper sent him a stiff, if polite, reminder that he was now the accredited correspondent of a very great and reliable publication, and that if he was to give satisfaction he would have to realise that his despatches must strike a more serious and more credible note.

Notwithstanding that warning, only a week or two passed before the same correspondent sent another cable in which the sea serpent was mentioned. It was a long message containing three or four different stories, one following the other without the break of a line.

The cable—so the story goes—began somewhat as follows:

> THE BISHOP OF WHU-KEI-WHU FOUND DEAD ON BEACH YESTERDAY SEA SERPENT 45 FT. LONG, SILVER-GREY COLOUR, LARGE PROTRUDING EYES, DISPORTING ITSELF 45 YARDS OFF-SHORE FOR WEEKS, SCARING FISH, MENACING FISHERMEN. . . .

The sub-editor who handled the cable quickly drew his pencil through the reference to the sea serpent, no doubt with a certain amount of irritation at the shortcomings of a correspondent who seemed to be bent on making an ass of himself. Having made the deletion, he was left with the following statement:

> "The Bishop of Whu-kei-Whu found dead on the beach yesterday."

So they turned up the obituary files on the bishop, and next day's issue of that great newspaper carried a long announcement of the death of a man who had not only made great contributions to the Church, but whose missionary activities had left their mark in many remote and pestilential places.

Now the bishop had a brother who, so the story goes, was a general, and he and his family at once went into mourning. Furthermore, a memorial service to the bishop was held in one

The Bishop of Whu-kei-Whu found dead on the beach

of London's most celebrated churches, and it was some weeks before the bishop in remote Whu-kei-Whu discovered that, so far as the world was concerned, he was very dead, and half the leaders of a nation had publicly mourned his passing in the capital.

There was naturally an enquiry, in consequence of which the newspaper had to render account for this lamentable departure from its self-appointed task of purveying the news. The original cable was unearthed, and then the error was seen in all its dreadful clarity. The line read:

> "The Bishop of Whu-kei-Whu found dead on beach yesterday sea serpent 45 ft. long."

The correspondent was absolved, but what happened to the sub-editor is not recorded in newspaper history !

This is perhaps a good example of the type of error that can arise from the careless transcription of cables. Another type of howler is traceable to the fact that the linotype machine, which is to be found in vast numbers in many newspaper offices, sets type not in single letters but in solid lines. This is, of course, of great advantage in many ways, but one disadvantage from the compositor's point of view is that, if he makes a mistake early on in a line, he is obliged to complete that line before he can extract the error-containing "slug," as it is called, from the machine and discard it. Unfortunately he does not always remember to make the extraction before or after he has reset the line correctly. To complete a line containing an error compositors generally have pet phrases—a proverb, a quotation from a prayer or hymn learned in childhood, or some easily recollected piece of jingle.

. . . that bottle-scarred veteran . . .

Having bored you with this recitation of the mechanics of typesetting, I can now describe a curious error which appeared one day in another well-known newspaper that once employed me. The occasion was an important speech by the then Chancellor of the Exchequer. His subject was an American loan which this country had just found itself unable to repay. The speech ran over several columns in the paper in question, and the reader eventually came to a passage which the sub-editor had considered so important as to have set in a bold, black type, indented from the rest of the copy. It was a "quote" from the Chancellor's actual words, and this is what he should have been reported as saying:

> "We negotiated this loan in all sincerity, and in all sincerity we undertook its repayment, but that has proved impossible, for our gold reserves have been diminishing . . ."

Unfortunately the compositor made a mistake in the first word of the last line, and was forced to fill out that line before proceeding. Afterwards he neglected to pick out and discard the offending "slug," and so the Chancellor was made to say:

> **"We negotiated this loan in all sincerity, and in all sincerity we undertook its repayment, but that has proved impossible, fot catch a nigger by his toe, if he squ . . . for our gold reserves have been diminishing . . ."**

When journalists talk of newspaper howlers the palm is always handed to the story that is known as that of "the battle-scarred general." It may be a fabulous yarn—I do not know—but as told by some journalists it has all the trappings of authenticity. Briefly, it goes something like this.

A famous general of the first world war published a book of his campaign reminiscences, and copies of it were sent for review to various publications throughout the country. In due time a certain London daily, so the story goes, appeared with a very kind and congratulatory notice. The notice began something like this:

> "There has been, of course, a spate of war books of all types in recent years, not all of them of good literary quality. All students of military strategy will, however, find absorbing reading in a book, just published, written by that *bottle*-scarred veteran, General ——"

The general—so the story goes—was by no means pleased with this description of himself, and indeed made strong representations to the end that some amends should be made for the damage done. So on the following day the newspaper published an apology "for an unfortunate error in our review of General ——'s book in yesterday's issue," the introduction to which, it said, should have read:

> "There has been, of course, a spate of war books of all types in recent years, not all of them of good literary quality. All students of military strategy will, however, find absorbing reading in a book, just published, written by that battle-*scared* veteran, General ——"

According to the soothsayers of Fleet Street, no further attempt to "undo the damage" was ever made.

"Silent Night"

Photo by G. L. Foulkes (Alkali Division)